

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently Amended) ~~A roadside-to-vehicle communication system for~~
including:

a plurality of mobile stations; and

a base station system communicating with the mobile stations and providing
the mobile stations with diverse a plurality of application services, by utilizing
~~roadside-to-vehicle~~ through communication implemented between the mobile stations
~~that, which~~ travel on a road, and a the base station system, which is installed along the
road, wherein each of the roadside-to-vehicle communication system comprising:
mobile stations and the base station system comprises

a transfer service processing entities for providing means to implement
entity implementing data transfer among a the plurality of applications, wherein the
transfer service processing entity identifies an application, with one of the mobile
stations and the base station system as a sending source, from among the plurality of
applications, utilizing port numbers; and

a transaction management entities for entity providing unidirectional
data transmission and request-response-type transaction services transactions, wherein
the transaction management entity identifies a unit of a transaction between a mobile
station and the base station system utilizing a transaction ID uniquely identifying a
corresponding port number and an identifier designated by and identifying a
respective application, of the plurality of applications, and the transaction
management entity comprising: includes

undelivered data segment resending means; for resending
undelivered data segments of a message,

data sending/receiving means for sending and receiving each message of a plurality of messages, and

message segmenting/assembling means for segmenting a message into a plurality of data segments and assembling a plurality of data segments of a message into the message.

Claims 2-10 (Cancelled).

11. (Currently Amended) ~~The roadside-to-vehicle~~ communication system according to claim ~~8~~ 1, wherein

the transaction management entity of a sending station, of the mobile station and the base station system, ~~divides an original~~ a message into a plurality of data segments and adds to each of the data segments one identifier ~~the transaction ID~~ corresponding to the respective port number and a one of sequential-number numbers for transaction-~~identifying~~ identification and ~~wherein~~ sends the message as the plurality of data segments with the transaction ID and sequential numbers, and

the transaction management entity of a receiving station, of the mobile stations and the base station system, ~~reassembles into the original~~ message sent by combining the data segments ~~whose identifiers are having identical to that one identifier~~ transaction IDs, by determining in an assembling order based on the sequential numbers.

12. (Currently Amended) ~~The roadside-to-vehicle~~ communication system according to claim 11, wherein, ~~in implementing divided transmission,~~ the transaction management entity, in dividing a message into data segments, controls duration between transmissions of data segments, depending on ~~the~~ status of a sending queue in a lower layer.

13. (Currently Amended) ~~The roadside-to-vehicle~~ communication system according to claim 11, wherein, when the transaction management entity of ~~the a~~ receiving station, of the mobile stations and the base station system, receives ~~the a~~ final data segment of the ~~divided message~~ message, the transaction management entity of the receiving station notifies the transaction management entity of the sending station of the sequential ~~number~~ numbers of any undelivered data segments, and the undelivered data resending means of the transaction management entity of the sending station resends only the undelivered data segments ~~only~~.

Claim 14 (Cancelled).

15. (Currently Amended) ~~The roadside-to-vehicle~~ communication system according to claim 11, wherein, when the ~~identifier~~ transaction ID, in a newly received data segment, ~~for identifying units of a transaction~~ is identical to the ~~identifier~~ transaction ID of a ~~data-segments segment~~ data-segments segment that ~~have~~ has been ~~already~~ previously received, the transaction management entity handles ~~that the newly~~ received data segment ~~as a~~ identically to the data segment ~~whose identifier is identical to that of the data-segments that have~~ has been ~~already~~ previously received.

16. (Currently Amended) ~~The roadside-to-vehicle~~ communication system according to claim 11, wherein the transaction management entity has ~~an~~ a bulk area, indicating a buffer region for assembling ~~divided data~~ segments into a message, and a bulk size indicating size of the buffer region designated by an application, of the plurality of applications.

17. (New) The communication system according to claim 1, wherein, when the transaction ID, in a newly received data segment is identical to the transaction ID of a data segment that has been previously received, the transaction management entity

handles the newly received data segment identically to the data segment that has been previously received.

18. (New) The communication system according to claim 1, wherein the transaction management entity aborts a transaction having a transaction ID identical to a transaction ID corresponding to the port number for which the corresponding application had made an abort request.

19. (New) A communication system including:

a plurality of mobile stations; and

a base station system communicating with the mobile stations and providing the mobile stations with a plurality of application services through communication between the mobile stations, which travel on a road, and the base station system, which is installed along the road, wherein each of the mobile stations and the base station system comprises

a transfer service processing entity, wherein the transfer service processing entity sends a list of accessible ports of the transfer service processing entity to a sending station, of the mobile stations and the base station system, when a Dedicated Short-Range Communication (DSRC) connection notification is received from the sending station; and

a transaction management entity providing unidirectional data transmission and request-response transactions, wherein the transaction management entity of the sending station sends, upon receipt of the list of accessible ports, transaction start enable information to an application which has requested starting of a transaction with a port that is included in the list of accessible ports, so that the application starts the transaction, and the transaction management entity includes

undelivered data segment resending means for resending undelivered data segments of a message,

data sending/receiving means for sending and receiving each message of a plurality of messages, and

message segmenting/assembling means for segmenting a message into a plurality of data segments and assembling a plurality of data segments of a message into the message.

20. (New) A communication system including:

a plurality of mobile stations and

a base station system communicating with the mobile stations and providing the mobile stations with a plurality of application services through communication between the mobile stations, which travel on a road, and the base station system, which is installed along the road, wherein each of the mobile stations and the base station system comprises

a transfer service processing entity implementing data transfer among the plurality of applications, the transfer service processing entity identifying an application of one of the mobile stations and the base station system as a sending source, from among the plurality of applications, utilizing port numbers; and

a transaction management entity providing unidirectional data transmission and request-response transactions, wherein

the transaction management entity sends, upon receipt of a Dedicated Short-Range Communication (DSRC) connection notification, transaction enable information to an application which has requested starting of a transaction, without a port number, so that the application starts the transaction, and

the transaction management entity sends a transaction abort request to the application that has started the transaction when the transaction management entity receives from a sending station, of the mobile stations and the base station system, a notification that the port number of the application is not effective, and

undelivered data segment resending means for resending undelivered data segments of a message,

data sending/receiving means for sending and receiving each message of a plurality of messages, and

message segmenting/assembling means for segmenting a message into a plurality of data segments and assembling a plurality of data segments of a message into the message.